NORTH DAKOTA
DEPARTMENT *of* HEALTH

ENVIRONMENTAL HEALTH SECTION
Gold Seal Center, 918 E. Divide Ave.
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AIR POLLUTION CONTROL
PERMIT TO CONSTRUCT

Pursuant to Chapter 23-25 of the North Dakota Century Code, and the Air Pollution Control Rules of the State of North Dakota (Article 33-15 of the North Dakota Administrative Code), and in reliance on statements and representations heretofore made by the owner designated below, a Permit to Construct is hereby issued authorizing such owner to construct and initially operate the source unit(s) at the location designated below. This Permit to Construct is subject to all applicable rules and orders now or hereafter in effect of the North Dakota Department of Health and to any conditions specified below:

I. **General Information**:

A. **Permit to Construct Number**: PTC15052

B. **Source**:

1. Name: Northern Plains Nitrogen

2. Location: N ½ of Section 24, Township 152 North, Range 51 West
Grand Forks County, North Dakota

3. Source Type: Fertilizer Plant

4. Equipment at the Facility:

This Air Pollution Control Permit to Construct is for a fertilizer manufacturing plant. The plant will produce both feedstock and saleable products in the following nominal capacities:

- 2,425 tons/day ammonia
- 2,540 tons/day ammonium nitrate solution
- 300 tons/day diesel exhaust fluid (DEF)
- 3,000 tons/day urea solution
- 3,000 tons/day granular urea
- 2,000 tons/day nitric acid
- 5,620 tons/day urea ammonium nitrate (UAN)
- 441 tons/day ammonium thiosulfate
- 1,080 tons/day ammonia polyphosphate (APP)

Additionally, the plant will feature the necessary equipment to support operations and delivery of saleable products at the following nominal rates:

- 885,125 tons/year ammonia
- 2,051,300 tons/year UAN
- 109,500 tons/year DEF
- 927,100 tons/year ammonium nitrate solution
- 160,965 tons/year ammonium thiosulfate
- 1,095,000 tons/year granular urea
- 394,200 tons/year APP

Emission units at the facility are as follows:

Emission Unit Description	Process Unit	Emission Unit (EU)	Emission Point (EP)	Air Pollution Control Equipment
Ammonia Plant Primary Reformer fired on natural gas with a rated heat input capacity of approximately 1,006 million Btu/hr	Ammonia	AM1	AM1	Low NO_x Burners and Selective Catalytic Reduction (SCR)
Ammonia Plant CO_2 Vent	Ammonia	AM2	AM2	None
Ammonia Plant Deaerator	Ammonia	AM3	AM3	None
Ammonia Plant Start-up Heater rated at 85.0 million Btu/hr and fired on natural gas	Ammonia	AM4	AM4	Low NO_x Burners
Ammonia Front End Flare	Ammonia	AM5A	AM5A	None
Ammonia Process Flare	Ammonia	AM5B	AM5B	None
Ammonia Tanks Flare	Ammonia	AM6	AM6	None
MDEA Storage Tank	Ammonia	TK-MDEA	TK-MDEA	Nitrogen Blanket
Nitric Acid Plant 1	Nitric Acid	NA1	NA1	Catalytic Decomposition and SCR
Nitric Acid Plant 2	Nitric Acid	NA2	NA2	Catalytic Decomposition and SCR
Ammonium Nitrate/ Urea Ammonium Nitrate Plant 1	ANS Plant	ANS1	ANS1	Wet scrubber inherent to the process and demister
Ammonium Nitrate/ Urea Ammonium Nitrate Plant 2	ANS Plant	ANS2	ANS2	Wet scrubber inherent to the process and demister
ANS Storage Tank #1	ANS Plant	TK-ANS1	TK-ANS1	None
ANS Storage Tank #2	ANS Plant	TK-ANS2	TK-ANS2	None
Urea Plant	Urea	UG1	UG1	Wet Scrubber
Granulated Urea Handling & Storage	Urea	UG2	UG2	Enclosures/Pollution Prevention/Bin Vent Filters
UF-85 Urea Formaldehyde Tank (100,466 gal.)	Urea	TK-UF85	TK-UF85	Submerged Fill Pipe
APP Production	APP	APP	APP1	None
Product Storage Tank	APP	TK-APP	TK-APP	None
NA Storage Tank	NA Plant	TK-NA	TK-NA	Vented to AN Scrubber
Boiler 1 with a rated heat input capacity of 187.5 million Btu/hr and fired on natural gas	Utilities	UT-B1	UT-B1	Ultra Low NO_x Burners and Flue Gas Recirculation
Boiler 2 with a rated heat input capacity of 187.5 million Btu/hr and fired on natural gas	Utilities	UT-B2	UT-B2	Ultra Low NO_x Burners and Flue Gas Recirculation
Boiler 3 with a rated heat input capacity of 187.5 million Btu/hr and fired on natural gas	Utilities	UT-B3	UT-B3	Ultra Low NO_x Burners and Flue Gas Recirculation
Cooling Tower	Utilities	UT4	UT4	Drift Eliminators

Emission Unit Description	Process Unit	Emission Unit (EU)	Emission Point (EP)	Air Pollution Control Equipment
Emergency generator driven by a Caterpillar Model SR5 diesel-fired engine rated at 2,681 bhp	Utilities	UT5	UT5	None
Emergency engine (fire pump) fired on diesel and rated at 450 bhp	Utilities	UT6	UT6	None
Gasoline dispensing facility	Utilities	UT7	UT7	None
Emergency generator – ammonia compressor driven by a Caterpillar Model SR5 diesel-fired engine rated at 2,681 bhp	Utilities	UT9	UT9	None
Ammonium Thiosulfate Plant	ATS	ATS1	ATS1	High Efficiency Filter
ATS Day Tank #1	ATS	TK-ATS1	TK-ATS1	None
ATS Day Tank #2	ATS	TK-ATS2	TK-ATS2	None
ABS Day Tank	ATS	TK-ATS3	TK-ATS3	None
ATS Off-Spec Storage Tank	ATS	TK-ATS4	TK-ATS4	None
ATS Sulfur Storage Tank	ATS	TK-ATS5	TK-ATS5	None
Product Storage Tank	ATS	TK-ATS6	TK-ATS6	None
Product Storage Tank #1	OSBL	TK-UAN1	TK-UAN1	None
Product Storage Tank #2	OSBL	TK-UAN2	TK-UAN2	None
Product Storage Tank #3	OSBL	TK-UAN3	TK-UAN3	None
Product Storage Tank #4	OSBL	TK-UAN4	TK-UAN4	None
DEF Product Tank	OSBL	TK-DEF	TK-DEF	None
Diesel tank (2,761 gal.)	OSBL	TK-D1	TK-D1	Submerged Fill Pipe
Diesel tank (620 gal.)	OSBL	TK-D2	TK-D2	Submerged Fill Pipe
Diesel tank (2,761 gal.)	OSBL	TK-D3	TK-D3	Submerged Fill Pipe
Product Loading Station	OSBL	LS1	LS1	Best Management Practices (BMP)
Haul roads	Sitewide	FUG-RD	FUG-RD	Paved Roads / BMP
Fugitive Emissions	Sitewide	FUG	FUG	Leak Detection and Repair Program

C. **Owner/Operator (Permit Applicant)**:

1. Name: Northern Plains Nitrogen, LLP
2. Address: 4200 James Ray Drive
   Grand Forks, ND 58203
3. Application Date: January 20, 2015

II. **Conditions**: This Permit to Construct allows the construction and initial operation of the above-mentioned new or modified equipment at the source. The source may be operated under this Permit to Construct until a Permit to Operate is issued unless this permit is suspended or revoked. The source is subject to all applicable rules, regulations, and orders now or hereafter in effect of the North Dakota Department of Health and to the conditions specified below.

A. **Emission Limits**: Emission limits from the operation of the source unit(s) identified in Item I.B of this Permit to Construct (hereafter referred to as "permit") are as follows. Source units not listed are subject to the applicable emission limits specified in the North Dakota Air Pollution Control Rules.

Emission Unit	EU	EP	Pollutant / Parameter	Emission Limit or Design / Work Practice	NDAC Applicable Requirement
Ammonia Plant Primary Reformer	AM1	AM1	NO_x	0.012 lb/MMBtu heat input (30-day rolling avg.)	33-15-15-01.2 (BACT)
			NO_x	12.08 lb/hr (1-hr. avg.)	33-15-02
			CO	0.0194 lb/MMBtu heat input (30-day rolling avg.)	33-15-15-01.2 (BACT)
			PM(filterable)	1.9 lb/MM standard cubic feet of natural gas (1-hr avg.)*	33-15-15-01.2 (BACT)
			$PM_{10}/PM_{2.5}$ (filterable and condensable)	5.385 lb/MM standard cubic feet of natural gas (1-hr. avg.)*	33-15-15-01.2 (BACT)
			VOC	0.0014 lb/MMBtu heat input (1-hr. avg.)*	33-15-15-01.2 (BACT)
			CO_2e	515,778 tons/year (12- month rolling total)	33-15-15-01.2 (BACT)
			Opacity	5%	33-15-15-01.2 (BACT)
Ammonia Plant CO_2 Vent	AM2	AM2	CO	2.83 lb/hr (1-hr. avg.)*	33-15-15-01.2 (BACT)
			VOC	14.57 lb/hr (1-hr. avg.)*	33-15-15-01.2 (BACT)
			CO_2e	389,809 tons/year (12-month rolling total)	33-15-15-01.2 (BACT)
Ammonia Plant Deaerator	AM3	AM3	VOC	0.17 lb/hr (1-hr. avg.)*	33-15-15-01.2 (BACT)
Ammonia Plant Heater	AM4	AM4	Opacity	5%	33-15-15-01.2 (BACT)
Ammonia Front End Flare	AM5A	AM5A	Opacity	No visible emissions (see Condition II.A.5)	33-15-15-01.2 (BACT)
Ammonia Process Flare	AM5B	AM5B	Opacity	No visible emissions (see Condition II.A.5)	33-15-15-01.2 (BACT)
Ammonia Tanks Flare	AM6	AM6	Opacity	No visible emissions (see Condition II.A.5)	33-15-15-01.2 (BACT)
Nitric Acid Plant 1	NA1	NA1	NO_x	0.33 lb/ton of 100% nitric acid produced (30-day rolling average)	33-15-15-01.2 (BACT)
			NO_x	13.75 lb/hr (1-hr avg.)	33-15-02
			N_2O	96.5% control efficiency*	33-15-15-01.2 (BACT)
			CO_2e	29,786 tons/year (12-month rolling total)	33-15-15-01.2 (BACT)

Emission Unit	EU	EP	Pollutant / Parameter	Emission Limit or Design / Work Practice	NDAC Applicable Requirement
Nitric Acid Plant 2	NA2	NA2	NO_x	0.33 lb/ton of 100% nitric acid produced (30-day rolling average)	33-15-15-01.2 (BACT)
			NO_x	13.75 lb/hr (1-hr avg.)	33-15-02
			N_2O	96.5% control efficiency*	33-15-15-01.2 (BACT)
			CO_2e	29,786 tons/year (12-month rolling total)	33-15-15-01.2 (BACT)
Ammonium Nitrate/ Urea Ammonium Nitrate Plant 1	ANS1	ANS1	$PM/PM_{10}/PM_{2.5}$	0.023 lb/ton of ammonium nitrate solution produced (1-hr. avg.)*	33-15-15-01.2 (BACT)
			$PM/PM_{10}/PM_{2.5}$	3.27 lb/hr (1-hr. avg.)*	33-15-02
			Opacity	5%	33-15-15-01.2 (BACT)
Ammonium Nitrate/ Urea Ammonium Nitrate Plant 2	ANS2	ANS2	$PM/PM_{10}/PM_{2.5}$	0.023 lb/ton ammonium nitrate solution produced (1-hr. avg.)*	33-15-15-01.2 (BACT)
			$PM/PM_{10}/PM_{2.5}$	3.27 lb/hr (1-hr. avg.)*	33-15-02
			Opacity	5%	33-15-15-01.2 (BACT)
Urea Plant	UG1	UG1	$PM/PM_{10}/PM_{2.5}$	0.005 gr/dscf (1-hr avg.)*	33-15-15-01.2 (BACT)
			$PM/PM_{10}/PM_{2.5}$	14.62 lb/hr (1-hr. avg.)*	33-15-02
			CO_2e	2,042 tons/year (12-month rolling total)	33-15-15-01.2 (BACT)
			Opacity	5%	33-15-15-01.2 (BACT)
Granulated Urea Handling and Storage	UG2	UG2	$PM/PM_{10}/PM_{2.5}$	Enclosures / Pollution Prevention / BMP (See Conditions II.A.3 and 4)	33-15-15-01.2 (BACT)
Ammonium Thiosulfate Plant	ATS1	ATS1	NO_x	5.1 lb/hr (1-hr. avg.)*	33-15-15-01.2 (BACT) 33-15-02
			PM/PM_{10}	5.79 lb/hr (1-hr. avg.)*	33-15-15-01.2 (BACT) 33-15-02
			$PM_{2.5}$	1.91 lb/hr (1-hr. avg.)*	33-15-15-01.2 (BACT) 33-15-02
			Opacity	5%	33-15-15-01.2 (BACT)
Product Loading Station	LS1	LS1	$PM/PM_{10}/PM_{2.5}$	BMP (See Conditions II.A.3 and 4)	33-15-15-01.2 (BACT)
			Opacity**	5%	33-15-15-01.2 (BACT)

Emission Unit	EU	EP	Pollutant / Parameter	Emission Limit or Design / Work Practice	NDAC Applicable Requirement
Boiler 1	UT-B1	UT-B1	NO_x	0.018 lb/MMBtu heat input (30-day rolling average)	33-15-15-01.2 (BACT)
			NO_x	3.38 lb/hr (1-hr. avg.)	33-15-02
			CO	0.036 lb/MMBtu (1-hr. avg.)*	33-15-15-01.2 (BACT)
			$PM/PM_{10}/PM_{2.5}$	0.0067 lb/MMBtu heat input (1-hr avg.)*	33-15-15-01.2 (BACT)
			VOC	0.0054 lb/MMBtu heat input (1-hr. avg.)*	33-15-15-01.2 (BACT)
			GHG (as CO_2e)	59,675 tons/yr (12-month rolling total)	33-15-15-01.2 (BACT)
			Opacity	5%	33-15-15-01.2 (BACT)
Boiler 2	UT-B2	UT-B2	NO_x	0.018 lb/MMBtu heat input (30-day rolling average)	33-15-15-01.2 (BACT)
			NO_x	3.38 lb/hr (1-hr. avg.)	33-15-02
			CO	0.036 lb/MMBtu (1-hr. avg.)*	33-15-15-01.2 (BACT)
			$PM/PM_{10}/PM_{2.5}$	0.0067 lb/MMBtu heat input (1-hr avg.)*	33-15-15-01.2 (BACT)
			VOC	0.0054 lb/MMBtu heat input (1-hr. avg.)*	33-15-15-01.2 (BACT)
			GHG (as CO_2e)	59,675 tons/yr (12-month rolling total)	33-15-15-01.2 (BACT)
			Opacity	5%	33-15-15-01.2 (BACT)
Boiler 3	UT-B3	UT-B3	NO_x	0.018 lb/MMBtu heat input (30-day rolling average)	33-15-15-01.2 (BACT)
			NO_x	3.38 lb/hr (1-hr. avg.)	33-15-02
			CO	0.036 lb/MMBtu (1-hr. avg.)*	33-15-15-01.2 (BACT)
			$PM/PM_{10}/PM_{2.5}$	0.0067 lb/MMBtu heat input (1-hr avg.)*	33-15-15-01.2 (BACT)
			VOC	0.0054 lb/MMBtu heat input (1-hr. avg.)*	33-15-15-01.2 (BACT)
			GHG (as CO_2e)	59,675 tons/yr (12-month rolling total)	33-15-15-01.2 (BACT)
			Opacity	5%	33-15-15-01.2 (BACT)
Cooling Tower	UT4	UT4	$PM/PM_{10}/PM_{2.5}$	BMP / Drift Eliminators (see Conditions II.A.3 and II.A.6)	33-15-15-01.2 (BACT)
Emergency Generator	UT5	UT5	Opacity	5%	33-15-15-01.2 (BACT)
Emergency Engine (fire pump)	UT6	UT6	Opacity	5%	33-15-15-01.2 (BACT)

Emission Unit	EU	EP	Pollutant / Parameter	Emission Limit or Design / Work Practice	NDAC Applicable Requirement
Emergency Generator – Ammonia Compressor	UT8	UT8	Opacity	5%	33-15-15-01.2 (BACT)
Fugitive Emissions	FUG	FUG	NO_x/VOC/CO_2e	Leak Detection and Repair Program (See Condition II.A.7)	33-15-15-01.2 (BACT)
Haul roads	UT9	UT9	PM/PM_{10}/$PM_{2.5}$	Paved roads / BMP (see Condition II.A.8)	33-15-15-01.2 (BACT)

* Compliance is determined based on the average of three test runs of at least 1 hour in length (one test, average of three runs).

** Opacity limit is applicable to bin vent filters.

Note: For the purposes of this permit, a "ton" is a short ton (2,000 pounds). The global warming potentials used to calculate carbon dioxide equivalent (CO_2e) emissions are 25 for methane and 298 for nitrous oxide.

1. **Fuel Restriction**: With the exception of the engines at the facility (EUs UT5, UT6 and UT8), all combustion devices at the facility shall be fired on pipeline quality natural gas. Natural gas combusted shall contain no more than 2 grains of sulfur per 100 standard cubic feet. The engines shall be fired on ultra low sulfur diesel fuel.

2. **Fuel Limitation**: Natural gas usage in the three boilers (EU UT-B1, UT-B2 and UT-B3) combined shall be limited to no more than 3,300 million standard cubic feet per year on a 12-month rolling total basis.

3. **Best Management Practices**: At all times, including periods of startup, shutdown, and malfunction, the permittee shall, to the extent practicable, maintain and operate any affected facility including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions.

4. **Granulated Urea Handling and Storage Control**: Emissions from granulated urea handling and storage shall be controlled using the following methods:

   a. Anti-caking additive shall be used during production of granulated urea.
   b. The granulated urea product shall be transferred from production to storage via enclosed conveyors with enclosed transfer points.
   c. The granulated urea product shall be stored in an enclosed warehouse.
   d. The granulated urea product shall be transferred from the storage area to the load out area via enclosed conveyors. The exhaust stream from the transfer into the final load-out surge bin will be exhausted through a bin vent filter designed to control particulate matter emissions to no more than 0.005 grains per dry standard cubic foot.
   e. Except for final truck and railcar loading, granulated urea load out operations will take place within enclosed buildings. Truck loading will take place in partially enclosed (2-sided) areas to provide shelter from winds. The loading of granulated

urea into the railcar or truck will be accomplished using telescoping chutes inserted into the railcar or truck.

5. **Flare Visible Emissions**: Flares shall be operated with no visible emissions except for periods not to exceed a total of five minutes during any two consecutive hours.

   Reference Method 22 of 40 CFR 60, Appendix A shall be used to determine compliance with this visible emissions provision.

6. **Cooling Tower Drift Eliminators**: The cooling tower shall be equipped with and operated with mist eliminators that are guaranteed to limit drift to 0.0005% or less.

7. **Fugitive Leak Detection and Repair (LDAR)**: The permittee shall:

   a. Implement an instrumental leak detection and repair program to minimize fugitive emissions from facility components in VOC service as defined by 40 CFR 60, Subpart VV. The program shall include quarterly leak inspections. A leak is detected when the instrument measures a concentration of 500 ppm or more of methane above background. Repairs shall be made as soon as practicable. Records shall be kept of all inspections and repairs. The records shall be available to the Department upon request.

   b. Implement an auditory, visual and olfactory (AVO) monitoring program to minimize fugitive ammonia and methane emissions from facility components in ammonia or natural gas service. The program shall include monthly leak inspections. A leak is detected when an odor is detected from a component. Repairs shall be made as soon as practicable. Records shall be kept of all inspections and repairs. The records shall be available to the Department upon request.

8. **Haul Roads**: The permittee shall maintain all haul roads within the property boundary of the facility in a paved state and apply best practices to minimize emissions. If visible plumes of particulate matter are being formed from the truck traffic on the haul roads, wetting and/or sweeping of the haul road must be completed as soon as practicable to minimize particulate matter emissions from the haul road.

B. **Emissions Testing**:

1. Initial Testing: Within 60 days after achieving the maximum production rate at the plant, but not later than 180 days after startup of the source, the permittee shall conduct emissions tests for the following emission units / contaminants:

Emissions Testing

Emission Unit	EP	Contaminant
Ammonia Plant Primary Reformer	AM1	$PM/PM_{10}/PM_{2.5}$ Opacity VOC
Ammonia Plant CO_2 Vent	AM2	CO VOC
Ammonia Plant Deaerator	AM3	VOC
Nitric Acid Plants	NA1 and NA2	N_2O (inlet/outlet to control device
Ammonium Nitrate Plants	ANS1 and ANS2	$PM/PM_{10}/PM_{2.5}$ Opacity
Urea Plant	UG1	$PM/PM_{10}/PM_{2.5}$ Opacity
Ammonium Thiosulfate Plant	ATS1	NO_x $PM/PM_{10}/PM_{2.5}$
Boilers	UT-B1, UT-B2 and UT-B3	$PM/PM_{10}/PM_{2.5}$ CO Opacity VOC

2. Notification: The permittee shall notify the Department using the form in the Emission Testing Guideline, or its equivalent, at least 30 calendar days in advance of any tests of emissions of air contaminants required by the Department. If the permittee is unable to conduct the performance test on the scheduled date, the permittee shall notify the Department at least five days prior to the scheduled test date and coordinate a new test date with the Department.

3. Sampling Ports/Access: Sampling ports shall be provided downstream of all emission control devices and in a flue, conduit, duct, stack or chimney arranged to conduct emissions to the ambient air.

   The ports shall be located to allow for reliable sampling and shall be adequate for test methods applicable to the facility. Safe sampling platforms and safe access to the platforms shall be provided. Plans and specifications showing the size and location of the ports, platform, and utilities shall be submitted to the Department for review and approval.

4. Other Testing:

   a. The Department may require the permittee to have tests conducted to determine the emission of air contaminants from any source, whenever the Department has reason to believe that an emission of a contaminant not addressed by the permit

applicant is occurring, or the emission of a contaminant in excess of that allowed by this permit is occurring. The Department may specify testing methods to be used in accordance with good professional practice. The Department may observe the testing. All tests shall be conducted by reputable, qualified personnel. The Department shall be given a copy of the test results in writing and signed by the person responsible for the tests.

All tests shall be made and the results calculated in accordance with test procedures approved by the Department. All tests shall be made under the direction of persons qualified by training or experience in the field of air pollution control as approved by the Department.

b. The Department may conduct tests of emissions of air contaminants from any source. Upon request of the Department, the permittee shall provide the necessary holes in stacks of ducts and such other safe and proper sampling and testing facilities, exclusive of instruments and sensing devices, as may be necessary for proper determination of the emission of air contaminants.

5. Nitric Acid Plants (EP NA1 and NA2): In addition to the initial nitrous oxide emissions test required under Condition II.B.1 of this permit, the permittee shall conduct an emissions test to measure nitrous oxide emissions from EP NA1 and NA2 no sooner than 180 days after startup of the source and within 365 days of startup of the source. The emissions test required under this condition shall be conducted at least 120 days after the initial emissions test required under condition II.B.1.

C. **Emissions Monitoring**:

1. Ammonia Plan Primary Reformer (EP AM1):

a. Carbon Monoxide (CO): The permittee shall install, calibrate, operate and maintain equipment for continuously monitoring the CO emission rate from the stack. The system shall report CO emissions in units of pounds of CO per million Btu heat input (30-day rolling average basis). The monitoring system shall include a continuous emission monitor (CEM) which shall comply with the requirements of 40 CFR 60, Appendix B, Performance Specification 4.

b. Nitrogen Oxides (NO_x): The permittee shall install, calibrate, operate and maintain equipment for continuously monitoring the NO_x emission rate from the stack. The system shall report NO_x emissions in units of pounds of NO_x per million Btu heat input (30-day rolling average) and pounds of NO_x per hour (1-hour average). The monitoring system shall include a CEM which shall comply with the requirements of 40 CFR 60, Appendix B, Performance Specification 2 and a continuous emission rate monitoring system (CERMS) which shall comply with the requirements of 40 CFR 60, Appendix B, Performance Specification 6.

c. Carbon Dioxide (CO_2): The permittee shall install, calibrate, operate and maintain equipment for continuously monitoring the CO_2 emission rate from the stack. The system shall report CO_2 emissions on a tons/year (12-month rolling total) basis. The monitoring system shall include a CEM which shall comply with the requirements of 40 CFR 60, Appendix B, Performance Specification 3 and a CERMS which shall comply with the requirements of 40 CFR 60, Appendix B, Performance Specification 6.

2. Ammonia Plant CO_2 Vent (EP AM2):

a. CO_2: The permittee shall install, calibrate, operate and maintain equipment for continuously monitoring the gas flow rate from the stack. CO_2 emissions shall be calculated by assuming that the gas flow consists entirely of CO_2. The system shall report CO_2 on a tons/year (12-month rolling total) basis. The monitor shall comply with the requirements of 40 CFR 60, Appendix B, Performance Specification 6.

3. Nitric Acid Plants (EP NA1 and NA2):

a. Nitrogen Oxides (NO_x): The permittee shall install, calibrate, operate and maintain equipment for continuously monitoring the NO_x emission rate from the stack. The system shall report NO_x emissions in units of pounds of NO_x per ton of 100% nitric acid produced (30-day rolling average) and pounds of NO_x per hour (1-hour average). The monitoring system shall include a CEM which shall comply with the requirements of 40 CFR 60, Appendix B, Performance Specification 2 and a CERMS which shall comply with the requirements of 40 CFR 60, Appendix B, Performance Specification 6.

4. Boilers (EP UT-B1, UT-B2 and UT-B3):

a. Nitrogen Oxides (NO_x): The permittee shall install, calibrate, operate and maintain equipment for continuously monitoring the NO_x emission rate from each stack. The system shall report NO_x emissions in units of pounds of NO_x per million Btu heat input (30-day rolling average) and pounds of NO_x per hour (1-hour average). The monitoring system shall include a CEM which shall comply with the requirements of 40 CFR 60, Appendix B, Performance Specification 2 and a CERMS which shall comply with the requirements of 40 CFR 60, Appendix B, Performance Specification 6.

5. Flares:

a. The presence of a flame shall be monitored using a thermocouple or any other equivalent device approved by the Department.

b. The permittee shall install, operate and calibrate a continuous monitoring system to measure and record the flow rate of gas discharged to each flare.

D. **Process Capacities**: This permit is based on the following processing capacities:

1. Feedstock and saleable products nominal capacities: 2,425 tons/day ammonia; 2,540 tons/day ammonium nitrate solution; 300 tons/day diesel exhaust fluid (DEF); 3,000 tons/day urea solution; 3,000 tons/day granular urea; 2,000 tons/day nitric acid; 5,620 tons/day urea ammonium nitrate (UAN), 441 tons/day ammonium thiosulfate and 1,080 tons/day ammonium polyphosphate (APP).

2. Utilities and product handling, storage, loading and transportation facilities to support the operations and delivery of saleable products at the following nominal rates: 885,125 tons/year ammonia; 2,051,300 tons/year UAN; 109,500 tons/year DEF; 927,100 tons/year ammonium nitrate solution; 160,965 tons/year ammonium thiosulfate and 1,095,000 tons/year granular urea and 394,200 tons/year APP.

The permittee shall not exceed the above processing rates on an annual average basis without prior approval from the Department.

E. **Recordkeeping**: All records shall be available for inspection by Department personnel and shall be submitted to the Department upon request. The following records shall be maintained:

1. All stack test results including field data, laboratory analysis data, and quality assurance data.

2. All continuous emissions monitoring data required by this permit.

3. All emission rate and/or concentration data obtained by the continuous monitors.

4. Temperature data, or other data for an alternative monitoring method approved by the Department, to monitor the presence of a flame at the flare.

5. All recordkeeping required by applicable federal standards established under 40 CFR Part 60 - Standards of Performance for New Stationary Sources.

6. All leak detection and repair records as required by this permit.

The owner/operator shall maintain any compliance monitoring records required by this permit or applicable requirements. The owner/operator shall retain records of all required monitoring data and support information for a period of at least five years from the date of the monitoring sample, measurement, report or application. Support information may include all calibration and maintenance records and all original strip-chart recordings/computer printouts for continuous monitoring instrumentation, and copies of all reports required by the permit.

F. **Stack/Flare Heights**: Emissions shall be vented through stacks/flares that meet the following height requirements. Stack/flare heights may be no less than those listed in the table below without prior approval from the Department.

Emission Unit	Emission Point	Minimum Height (feet)
Ammonia Plant Primary Reformer	AM1	131
Ammonia Plant CO_2 Vent	AM2	185
Ammonia Plant Deaerator	AM3	95
Ammonia Plant Startup Heater	AM4	112
Ammonia Plant Front End Flare	AM5A	217.5
Ammonia Plant Process Flare	AM5B	217.5
Ammonia Storage Tank Flare	AM6	67.2
Nitric Acid Plants	NA1 and NA2	135
Ammonium Nitrate Plants	ANS1 and ANS2	170
Urea Plant	UG1	197
Ammonium Thiosulfate Plant	ATS1	100
Boilers	UT-B1, UT-B2, and UT-B3	98
Cooling Tower	UT4	80

G. **Greenhouse Gas Emissions Calculations**: By the 15th day of each month, the owner/operator shall calculate and record the greenhouse gas (GHG) emissions (as CO_2e) from the following emission units for the previous month and for the previous 12 months (12-month rolling total). Emissions shall be calculated in a method as shown below.

$GHG_{REFORMER}$	=	Calculated GHG emissions (in tons, as CO_2e) from the primary reformer (EU AM1)
$GHG_{REFORMER}$	=	$CO_{2\text{-}REFORMER} + CH_{4\text{-}REFORMER} + N_2O_{REFORMER}$
$CO_{2\text{-}REFORMER}$	=	Calculated CO_2 emissions (in tons) from the primary reformer obtained from the CO_2 CERMS for the primary reformer
$CH_{4\text{-}REFORMER}$	=	Methane (CH_4) emissions (in tons, as CO_2e) from the primary reformer
$CH_{4\text{-}REFORMER}$	=	(Amount of natural gas combusted in the reformer, scf) x (2.3 lb CH_4/million scf) x (1 ton / 2,000 lb) x 25
$N_2O_{REFORMER}$	=	Nitrous Oxide (N_2O) emissions (in tons, as CO_2e) from the primary reformer
$N_2O_{REFORMER}$	=	(Amount of natural gas combusted in the reformer, scf) x (0.2 lb N_2O/million scf) x (1 ton / 2,000 lb) x 298
GHG_{VENT}	=	GHG emissions (in tons, as CO_2e) from the CO_2 Vent
GHG_{VENT}	=	$CO_{2\ EU\ AM2}$
$CO_{2\text{-}EU\ AM2}$	=	CO_2 emissions from EP AM2 obtained from the CO_2 CERMS for EP AM2 required by this permit
GHG_{UREA}	=	GHG emissions (in tons) from the urea production process
GHG_{UREA}	=	$CO_{2\text{-}UREA} + CH_{4\text{-}UREA}$
$CO_{2\text{-}UREA}$	=	CO_2 emissions (in tons) from the urea production process
$CO_{2\text{-}UREA}$	=	(Amount of urea produced, tons) x (0.16 lb CO_2/ton) x (1 ton / 2,000 lb)
$CH_{4\text{-}UREA}$	=	CH_4 emissions (in tons, as CO_2e) from the urea production process
$CH_{4\text{-}UREA}$	=	[(Amount of urea produced, tons) x (0.14 lb CH_4/ton) x (1 ton/2000 lb) x 25
GHG_{NITRIC}	=	GHG emissions (in tons, as CO_2e) from nitric acid production

$GHG_{NITRIC\ 1}$	=	$N_2O_{NITRIC\ 1}$
$N_2O_{NITRIC\ 1}$	=	N_2O emissions (in tons, as CO_2e) from nitric acid production
$N_2O_{NITRIC\ 1}$	=	Calculated N_2O emissions (in tons, as CO_2e) from nitric acid production (EP NA1) based on an N_2O emission factor obtained from the most recent Department-approved performance test. Emissions shall be calculated in accordance with the requirements of 40 CFR 98.223, 98.224 and 98.225.
$GHG_{NITRIC\ 2}$	=	$N_2O_{NITRIC\ 2}$
$N_2O_{NITRIC\ 2}$	=	N_2O emissions (in tons, as CO_2e) from nitric acid production
$N_2O_{NITRIC\ 2}$	=	Calculated N_2O emissions (in tons, as CO_2e) from nitric acid production (EP NA2) based on an N_2O emission factor obtained from the most recent Department-approved performance test. Emissions shall be calculated in accordance with the requirements of 40 CFR 98.223, 98.224 and 98.225.
$GHG_{BOILER\ 1}$	=	Calculated GHG emissions (in tons) from the Boiler 1 (EU UT-B1)
$GHG_{BOILER\ 1}$	=	$CO_{2\text{-}BOILER\ 1} + CH_{4\text{-}BOILER\ 1} + N_2O_{BOILER\ 1}$
$CO_{2\text{-}BOILER\ 1}$	=	CO_2 emissions (in tons, as CO_2e) from the Boiler 1
$CO_{2\text{-}BOILER\ 1}$	=	(Amount of natural gas combusted in Boiler 1, scf) x (119,317 lb CO_2/million scf) x (1 ton / 2,000 lb)
$CH_{4\text{-}BOILER\ 1}$	=	Methane (CH_4) emissions (in tons, as CO_2e) from Boiler 1
$CH_{4\text{-}BOILER\ 1}$	=	(Amount of natural gas combusted in Boiler 1, scf) x (2.3 lb CH_4/million scf) x (1 ton / 2,000 lb) x 25
$N_2O_{BOILER\ 1}$	=	Nitrous Oxide (N_2O) emissions (in tons, as CO_2e) from Boiler 1
$N_2O_{BOILER\ 1}$	=	(Amount of natural gas combusted in Boiler 1, scf) x (0.23 lb N_2O/million scf) x (1 ton / 2,000 lb) x 298
$GHG_{BOILER\ 2}$	=	Calculated GHG emissions (in tons) from the Boiler 2 (EU UT-B2)
$GHG_{BOILER\ 2}$	=	$CO_{2\text{-}BOILER\ 2} + CH_{4\text{-}BOILER\ 2} + N_2O_{BOILER\ 2}$
$CO_{2\text{-}BOILER\ 2}$	=	CO_2 emissions (in tons, as CO_2e) from the Boiler 2
$CO_{2\text{-}BOILER\ 2}$	=	(Amount of natural gas combusted in Boiler 2, scf) x (119,317 lb CO_2/million scf) x (1 ton / 2,000 lb)
$CH_{4\text{-}BOILER\ 2}$	=	Methane (CH_4) emissions (in tons, as CO_2e) from Boiler 2
$CH_{4\text{-}BOILER\ 2}$	=	(Amount of natural gas combusted in Boiler 2, scf) x (2.3 lb CH_4/million scf) x (1 ton / 2,000 lb) x 25
$N_2O_{BOILER\ 2}$	=	Nitrous Oxide (N_2O) emissions (in tons, as CO_2e) from Boiler 2
$N_2O_{BOILER\ 2}$	=	(Amount of natural gas combusted in Boiler 2, scf) x (0.23 lb N_2O/million scf) x (1 ton / 2,000 lb) x 298
$GHG_{BOILER\ 3}$	=	Calculated GHG emissions (in tons) from the Boiler 3 (EU UT-B3)
$GHG_{BOILER\ 3}$	=	$CO_{2\text{-}BOILER\ 3} + CH_{4\text{-}BOILER\ 3} + N_2O_{BOILER\ 3}$
$CO_{2\text{-}BOILER\ 3}$	=	CO_2 emissions (in tons, as CO_2e) from the Boiler 3
$CO_{2\text{-}BOILER\ 3}$	=	(Amount of natural gas combusted in Boiler 3, scf) x (119,317 lb CO_2/million scf) x (1 ton / 2,000 lb)
$CH_{4\text{-}BOILER\ 3}$	=	Methane (CH_4) emissions (in tons, as CO_2e) from Boiler 3
$CH_{4\text{-}BOILER\ 3}$	=	(Amount of natural gas combusted in Boiler 3, scf) x (2.3 lb CH_4/million scf) x (1 ton / 2,000 lb) x 25
$N_2O_{BOILER\ 3}$	=	Nitrous Oxide (N_2O) emissions (in tons, as CO_2e) from Boiler 3
$N_2O_{BOILER\ 3}$	=	(Amount of natural gas combusted in Boiler 3, scf) x (0.23 lb N_2O/million scf) x (1 ton / 2,000 lb) x 298

GHG emissions from the emission units listed are restricted to the limits provided in Section II.A of this permit. If calculated GHG emissions from any listed emission unit exceed any individual limit in any 12 month period, the permittee shall notify the Department in writing within 15 days of the date the calculation was made.

H. **Cooling Towers**: Per 40 CFR 63 Subpart Q, the permittee shall not use chromium based water treatment chemicals in the cooling towers.

I. **40 CFR 60, Subpart Db**: The permittee shall comply with all applicable requirements of 40 CFR 60, Subpart Db – Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units.

J. **40 CFR 60, Subpart Ga**: The permittee shall comply with all applicable requirements of 40 CFR 60, Subpart Ga – Standards of Performance for Nitric Acid Plants for Which Construction, Reconstruction, or Modification Commenced After October 14, 2011.

K. **40 CFR 60, Subpart IIII**: The permittee shall comply with all applicable requirements of 40 CFR 60, Subpart IIII – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines

L. **40 CFR 63, Subpart ZZZZ**: The permittee shall comply with all applicable area source requirements of 40 CFR 63, Subpart ZZZZ – National Emissions Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines.

M. **Construction**: Construction of the above described facility shall be in accordance with information provided in the permit application as well as any plans, specifications and supporting data submitted to the Department. The Department shall be notified ten days in advance of any significant deviations from the specifications furnished. The issuance of this Permit to Construct may be suspended or revoked if the Department determines that a significant deviation from the plans and specifications furnished has been or is to be made.

Any violation of a condition issued as part of this permit to construct as well as any construction which proceeds in variance with any information submitted in the application, is regarded as a violation of construction authority and is subject to enforcement action.

N. **Startup Notice**: A notification of the actual date of initial startup shall be submitted to the Department within 15 days after the date of initial startup.

O. **Title V Permit to Operate**: Within one year after startup of the units covered by this Permit to Construct, the owner/operator shall submit a permit application for a Title V Permit to Operate fo for the facility.

P. **Permit Invalidation**: This permit shall become invalid if construction is not commenced within eighteen months after issuance of such permit, if construction is discontinued for a period of eighteen months or more; or if construction is not completed within a reasonable time.

Q. **Fugitive Emissions**: The release of fugitive emissions shall comply with the applicable requirements of NDAC 33-15-17.

R. **Annual Emission Inventory/Annual Production Reports**: The owner/operator shall submit an annual emission inventory report or an annual production report, upon request, on forms supplied or approved by the Department.

S. **Source Operations**: Operations at the installation shall be in accordance with statements, representations, procedures and supporting data contained in the initial application, and any supplemental information or application(s) submitted thereafter. Any operations not listed in this permit are subject to all applicable North Dakota Air Pollution Control Rules.

T. **Alterations, Modifications or Changes**: Any alteration, repairing, expansion, or change in the method of operation of the source which results in the emission of an additional type or greater amount of air contaminants or which results in an increase in the ambient concentration of any air contaminant, must be reviewed and approved by the Department prior to the start of such alteration, repairing, expansion or change in the method of operation.

U. **Air Pollution from Internal Combustion Engines**: The permittee shall comply with all applicable requirements of NDAC 33-15-18-01 – Internal Combustion Engine Emissions Restricted.

V. **Nuisance or Danger**: This permit shall in no way authorize the maintenance of a nuisance or a danger to public health or safety.

W. **Malfunction Notification**: The owner/operator shall notify the Department of any malfunction which can be expected to last longer than twenty-four hours and can cause the emission of air contaminants in violation of applicable rules and regulations.

X. **Operation of Air Pollution Control Equipment**: The owner/operator shall maintain and operate all air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions.

Y. **Transfer of Permit to Construct**: The holder of a permit to construct may not transfer such permit without prior approval from the Department.

Z. **Right of Entry**: Any duly authorized officer, employee or agent of the North Dakota Department of Health may enter and inspect any property, premise or place at which the source listed in Item I.B of this permit is located at any time for the purpose of ascertaining the state of compliance with the North Dakota Air Pollution Control Rules. The Department may conduct tests and take samples of air contaminants, fuel, processing material, and other materials which affect or may affect emissions of air contaminants from any source. The Department shall have the right to access and copy any records required by the Department's rules and to inspect monitoring equipment located on the premises.

AA. **Other Regulations**: The owner/operator of the source unit(s) described in Item I.B of this permit shall comply with all State and Federal environmental laws and rules. In addition, the owner/operator shall comply with all local burning, fire, zoning, and other applicable ordinances, codes, rules and regulations.

BB. **Permit Issuance**: This permit is issued in reliance upon the accuracy and completeness of the information set forth in the application. Notwithstanding the tentative nature of this information,

the conditions of this permit herein become, upon the effective date of this permit, enforceable by the Department pursuant to any remedies it now has, or may in the future have, under the North Dakota Air Pollution Control Law, NDCC Chapter 23-25. Each and every condition of this permit is a material part thereof, and is not severable.

CC. **Odor Restrictions**: The owner/operator shall not discharge into the ambient air any objectionable odorous air contaminant which is in excess of the limits established in NDAC 33-15-16.

The owner/operator shall not discharge into the ambient air hydrogen sulfide (H_2S) in concentrations that would be objectionable on land owned or leased by the complainant or in areas normally accessed by the general public. For the purpose of complaint resolution, two samples with concentrations greater than 0.05 parts per million (50 parts per billion) sampled at least 15 minutes apart within a two-hour period and measured in accordance with Section 33-15-16-04 constitute a violation.

DD. **Sampling and Testing**: The Department may require the owner/operator to conduct tests to determine the emission rate of air contaminants from the source. The Department may observe the testing and may specify testing methods to be used. A signed copy of the test results shall be furnished to the Department within 60 days of the test date. The basis for this condition is NDAC 33-15-01-12 which is hereby incorporated into this permit by reference. To facilitate preparing for and conducting such tests, and to facilitate reporting the test results to the Department, the owner/operator shall follow the procedures and formats in the Department's Emission Testing Guideline.

FOR THE NORTH DAKOTA
DEPARTMENT OF HEALTH

Date 8/10/15

By Terry O'Clair

Terry L. O'Clair, P.E.
Director
Division of Air Quality